X

PROGRESS REPORT

BENGAL SECRETARIAT LIBRARY

OF THE

FOREST SCHOOL, DEHRA DUN

FOR

1889-90.

1891.

No. 15-F., dated Calcutta, the 6th December 1890.

RESOLUTION—By the Government of India, Revenue and Agricultural Department.

READ—

Circular Resolution of this Department, No. 34-F., dated 9th October 1889, communicating remarks on the Report of the Forest School, Dehra Dún, for 1888-89.

Read also—

Report of the Forest School for 1889-90.

RESOLUTION.

The Annual Administration Report of the Imperial Forest School, Dehra Dún, for the year 1889-90, due on the 10th July, reached the Officiating Inspector General of Forests only on the 4th September.

2. The attendance at the School was represented by a total of 72 students, of whom 29 attended each of the English Courses and 3 and 11 the senior and junior Vernacular Courses respectively. Of the 29 students attached to the senior English Course, 9 had completed their residence, but, having failed to obtain certificates in March 1889, were detained till 7th July only, on which date they were granted certificates. This procedure will not be allowed in future, and students who fail will either leave without certificates, or be required to follow again the complete second year's course of studies. There remained 20 senior students in residence, of whom two private students, Messrs. Scott and Watts, left without completing the course. The number of the first year's students was reduced to 28 by one resignation, and one of the first year's men of the Vernacular Class also withdrew during the year, leaving 10 of that year.

Of the 59 candidates who either passed out of the School or studied continuously, 33 were deputed by different Governments, 13 were sent by Native States, and 13 were private students. The steadily increasing proportion of the two latter classes is noticed with satisfaction by the Government of India.

3. Certificates were granted in March to 11 of the 18 candidates attending the senior English Course, and to all the three students of the senior Vernacular Course. Of the 7 students who failed, 3 came from Native States, 3 were private students (Europeans), and one only had been deputed by a Local Government. The examinations were conducted in the manner desired by the Government of India in paragraph 4 of their Resolution on the Annual Report for 1888-89.

4. The Director of the School was several times changed during the year consequent on the illness of Colonel Bailey, R.E., an officer who has rendered exceptional service as Director, and whom it is difficult to replace. The chief burden of carrying on the work of the past year has thus fallen on Mr. Fernandez, the Deputy Director. The Government of India desire to acknowledge the zeal and energy with which his duties have been fulfilled. The staff would be inadequate in any circumstances for the present requirements of the School, and the unavoidable changes above referred to have greatly enhanced the difficulties with which he had to contend.

5. Towards the close of the year, a Conference was held at Dehra under the orders of the Government of India, presided over by the Officiating Secretary in this Department, to consider questions which had arisen in connection with

the direction and management of the School. The most important of these matters were the establishment of a suitable Board of Control, the provision of an adequate staff of teachers, and the question whether it was desirable to place the School under an Officer of the Educational Department.

The recommendations of the Conference were to the following effect :—

(i) That the Director of the School should continue to be a Forest Officer, who should, as at present, be the Conservator of the School Circle in the North-Western Provinces for the following reasons, *viz.* :—(1) a special knowledge of the objects of the School, and of the practical duties to be eventually performed by the trained pupils, is essential; (2) a Forest Officer of standing and capability will in any case be required for special instruction in Forestry, and it might be difficult to adjust the relations between him and a Director introduced from another Department; (3) it is necessary that the Director of the School should also be the Conservator of the Circle in order to enable the practical out-door instruction to be well carried out and to enlist the co-operation of the Forest subordinates; (4) the Divisional Officers under the Conservator of the School Circle must be employed under the Director for teaching, and their having to serve two masters would give rise to difficulties; (5) the Conservator might transfer these officers within his Circle in a way that would be inconvenient to the School.

(ii) That while the School Staff, as well as all questions of finance, should remain as heretofore subject to the orders of the Inspector General of Forests, a Board of Control should be constituted, of which the duties, *inter alia,* would be as follows :—

(*a*) To arrange for the conduct of the examinations by certain of its members, who would thus form an independent examining body separate from the teaching staff.

(*b*) To decide on all matters connected with the curriculum of studies at the School.

(*c*) To advise regarding the prospectus of the School, qualifications for admission, &c.

(*d*) To decide the relative number of marks to be given for the different subjects, the forms of certificates, the minimum marks for *pass* and *honour* certificates, and similar matters.

(iii) That this Board should be composed of the following members :—

The Inspector General of Forests, *President.*

The Director of Public Instruction, North-Western Provinces and Oudh.

The Director of the School.

One Conservator from each Province.

With, as *Secretary,* the Assistant Inspector General of Forests.

(iv) That in view of the growing requirements of the School, and to admit of the extended course of instruction now given being carried on successfully, it was necessary that the staff of Instructors should be correspondingly increased.

6. The first and third of these recommendations have been acquiesced in by the Government of the North-Western Provinces and Oudh, and accepted by the Government of India.

Provision for the continuance of the joint appointment of Director and Conservator has been made in the scheme recently submitted to Her Majesty's Secretary of State for the reorganization of the Forest Department; and Mr. J. Sykes-Gamble, M.A., one of the Conservators in the Madras Presidency, has been selected for the office.

The proposal to increase the teaching staff has also been submitted for the consideration of the Secretary of State, who has been asked to sanction the employment of two additional Instructors. The School Staff will, under this scheme, comprise the following officers.—

1 Director 1 Deputy Director 2 Instructors	Upper Controlling Staff.
1 Instructor	... Lower Controlling Staff.

Other Local Governments and Administrations will now be addressed with reference to the appointment of Conservators to the Board of Control, the constitution of which will then be duly effected.

ORDER.—Ordered, that a copy of the above Resolution, together with a copy of the Forest School Report, be forwarded, for information, to the Governments of Madras and Bombay, the Local Governments and Administrations noted on the margin, and the Comptroller and Auditor General; also to the Inspector General of Forests, for information and for communication to the Director of the Forest School and the Superintendent of Forest Surveys.

Bengal North-Western Provinces and Oudh. Central Provinces. Burma.	Assam. Coorg Ajmere. Andamans. Hyderabad

Ordered, further, that a copy be forwarded to the Government of the Punjab, for information and for communication to the Rajas of Sirmúr, Bilaspur, Kotaha, Nalargarh, and Kalsia; and to the Foreign Department, for communication to the Resident at Mysore, the Agent to the Governor General in Baluchistan, and His Highness the Maharaja of Alwar.

G. C. Press, Simla.—No 837 R. & A D.—16-12-90—150.

No. 38 of 1889-90

FROM

CECIL BAGSHAWE,

OFFG DIRECTOR OF THE FOREST SCHOOL, DEHRA DUN,

To

THE INSPECTOR GENERAL OF FORESTS

TO THE GOVERNMENT OF INDIA

Dated Dehra Dun, the 11th July 1890.

SIR,

I HAVE the honour to submit the Annual Administration Report of the Imperial Forest School, Dehra Dun, for 1889-90.

I have the honour to be,

SIR,

Your most obedient Servant,

C BAGSHAWE,

Offg. Director of Forest School

FOREST SCHOOL REPORT FOR 1889-90.

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PROGRESS REPORT OF THE IMPERIAL FOREST SCHOOL, 1889-90.

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CHAPTER I.

THE SCHOOL STAFF.

The following changes occurred in the School Staff :—

Director, Lieutenant-Colonel F. Bailey, R.E. .	1st April to 10th June.
„ Mr. E. E. Fernandez . . .	11th June to 22nd August.
„ Lieutenant-Colonel F. Bailey, R.E. .	23rd August to 24th August.
„ Colonel G. J. VanSomeren . .	24th August to 23rd November.
„ Lieutenant-Colonel F. Bailey, R.E. .	24th November to 23rd March.
„ Mr. C. Bagshawe . . .	24th March to 31st March.
Deputy Director, Mr. E. E Fernandez .	1st April to 31st March.
Instructor, Dr. Warth (on furlough) . .	1st April to 27th June.
„ Mr. N. N. Banerjee . . .	28th June to 23rd November.
„ „ A. Smythies . . .	24th November to 31st March.

2. The following officers aided the ordinary staff during the rains term :—

I. Mr. A. Smythies, Deputy Conservator, Dehra Dún Division.
II. „ L Mercer, Assistant Conservator, Saharanpur Division.
III. „ J. F Duthie, Director of Botany, Northern India.
IV. „ E. C. Cotes, Assistant Superintendent, Calcutta Museum.
V. „ Reynolds, Superintendent, Forest Surveys.
VI. „ T. Marten, Forest Surveyor.
VII. „ J. Marten, „ „
VIII. „ A Descubes, „ „
IX. Forest Ranger Har Swarup, Dehra Dún Division.
X. „ „ Birbal, Forest School.
XI. Babu Gopal Singh, Mission School, Dehra Dún.

3. The School Classes during the rains term were formed as follows :—

No.	CLASSES.	Name of Instructor.	Honoraria allotted to special Professors.
			R
1	Structure and growth of plants . . .	Mr. Fernandez, Deputy Director .	...
2	Physical Science	„ Banerjee, Instructor . .	
3	Forestry	„ Smythies, Special Professor .	300
4	Forest Law	„ Mercer, „ „	} 200
5	Forest Engineering	„ Mercer, „ „	
6	Mathematics	„ Osmaston, „ „ .	100
7	Systematic Botany	„ Duthie, „ „ .	225
8	Entomology	„ Cotes, „ „ .	300
9	Surveying	„ Reynolds and Assistants . .	500
10	Map and plan drawing	„ Descubes	200
11	Forestry, Law and Engineering in Vernacular	Forest Ranger Har Swarup .	100
12	Physical Science in Vernacular . . .	„ „ Birbal . .	60
13	Mathematics in Vernacular	Babu Gopal Singh	60
		TOTAL .	2,045

CHAPTER II.

ATTENDANCE OF STUDENTS.

Students who failed at the Final Examination for Rangers, 1889.

4. The following nine men who failed at the March 1889 Final Examination were retained at the School and attached to the Junior Class of 1888-89 :—

Arokiaswami	Northern Circle, Madras.
B. Chandra Goshal	Bengal.
C. Haldane	Private student,
Hanumanthulu	Northern Circle, Madras.
E. Haslett	Central Circle, N.-W. P. and Oudh.
E. J. N. James	Bengal.
K. Prasada	Oudh Circle, N.-W. P. and Oudh.
Prasadi Lall	Central Circle, N.-W. P. and Oudh.
R. Pillai	Northern Circle, Madras.

5. The Senior Classes of 1889-90, as detailed in Return I attached to this report, consisted of—

ENGLISH CLASS.

Government students	17
Alwar State „	2
Private students	3
TOTAL	22

Besides the above, Mr. J. L. Hansard (who was wounded by one of the Jaunsar man-eating tigers) proceeded on six months' leave on medical certificate, and three students left the School without completing the course, *viz.*:—

1. Panna Lal . . . . Government student.
2. W. R. Scott . . . . Private „
3. A. C. Watt . . . . „ „

The total number of senior English students was 26 against 29 in 1888-89.

VERNACULAR CLASS, 1889-90.

Government student	1
Sirmoor State „	1
Bilaspur „ „	1
TOTAL	3

against 5 in 1888-89.

6. *Junior English Class, 1889-90.*—An Entrance Examination was held in May 1889 with the following results:—

CLASS OF CANDIDATES.	NUMBER EXAMINED.			NUMBER PASSED.		
	STYLE OF LIVING.		Total.	STYLE OF LIVING.		Total.
	European.	Native.		European	Native.	
Government	5	16	21	2	8	10
From Native States	...	10	10	—	9	9
Private	7	6	13	5	5	10
TOTAL	12	32	44	7	22	29

Of the men who passed—

		No.
Government student,	D. S. Iyer	1
State students	K. K. Achari, M. H. Hussain, T. R. Iyengar, M. Ramia	4

did not join the School.

The following men, as detailed in Return I, formed the Junior Classes, 1889-90:—

Government students	15
State „	5
Private „	9
TOTAL	29

against 25 in 1888-89.

Mr. N. C. McLeod, Central Provinces, and Netra Bullabh, Central Circle, North-Western Provinces and Oudh, who passed the Entrance Examination in 1888, joined the School in July 1890.

A special examination for entrance was held in October 1889, with the following results :—

Mr. L. K. Martin	.	Central Circle, N.-W. P. and Oudh, passed.
„ R. C. Thompson	.	Central Provinces, „ . „
„ A. T. C. Howell	.	„ „ „
„ A. W. Hearsey	.	Private student, failed.

The two latter were in the Junior Class, 1888-89; the two former joined the School in July 1890.

7. The comparative strength of the School for the year was—

	1888-89	1889-90
Senior English Class	29	20
Junior „	25	29
Senior Vernacular Class	5	3
Junior „	3	11
TOTAL	62	63

while the attendance of the year from the different Provinces may be thus abstracted :—

Province, Circle or State.		Ranger's Course. Men of the previous year who failed to pass in March 1889. Probationary Sub-Assistant Conservators.	Rangers.	Foresters and others.	Senior. Probationary Sub-Assistant Conservators.	Rangers.	Foresters and others.	Junior. Probationary Sub-Assistant Conservators.	Rangers.	Foresters and others.	Forester's Course. Senior. Men holding Middle Class Certificates.	Others.	Junior. Men holding Middle Class Certificates.	Others.	Total for each Circle.
Government of India.	Bengal	1	...	1	...	...	...	...	...	2	...	...	...	...	4
	Assam	...	...	...	...	1	...	...	1	...	...	...	...	...	2
	Central Circle, N.-W. P.	...	...	2	...	...	1	...	...	2	...	...	...	...	5
	School „ „	...	...	...	...	...	1	...	...	...	...	...	1	...	2
	Oudh „ „	...	...	1	...	...	1	...	...	...	...	...	...	...	2
	Punjab „ „	...	...	...	...	...	2	...	...	1	1	...	...	...	4
	Central Provinces	...	.		1	...	1	1	2	2	...	...	...	4	11
	TOTAL	1	..	4	1	1	6	1	3	7	1	...	1	4	30
Government of Madras.	Northern Circle, Madras	...	...	3	...	...	1	...	...	1	...	...	...	...	5
	Southern „ „	..	..	...	..	2	...	...	...	1	...	...	...	...	3
	TOTAL	...	..	3	..	2	1		...	2	...	...	...	...	8
Ceylon		...	..	...	1	...	.	2	...	...	...	...	...	...	3
Native States.	Alwar	...	...	...	...	...	2	...	...	...	..	...	...	...	2
	Sirmoor	...	...	..	...	...	...	...	...	..	1	...	...	...	1
	Mysore	...	...	...	...	...	1	..	...	5	...	...	...	...	6
	Bilaspur	...	...	.	...	...	...	...	...	...	1	...	.	...	1
	Kotaha	...	...	...	...	...	...	...	...	...	...	...	1	...	1
	Nalagarh	...	...	...	...	...	...	..	...	..	...	...	1	...	1
	Kalsia	...	...	...	...	...	..	...	...	...	...	..	1	...	1
	TOTAL	...	..	...	...	...	3	...	...	5	2	...	3	...	13
Private students		...	..	1	...	...	5	...	...	9	...		3	...	18
GRAND TOTAL		1	...	8	2	3	15	3	3	23	3	...	7	4	72

8. The students of the year may be classed as follows according to their style of living:—

		NUMBER OF STUDENTS.							
		GOVERNMENT		NATIVE STATES.		PRIVATE.		TOTAL.	
		European	Native.	European.	Native.	European.	Native.	European.	Native.
Ranger's Course.	Failed men allowed to remain at the School	1	7	...	...	1	...	2	7
	Senior	2	10	.	3	5	...	7	13
	Junior	6	9	..	5	3	6	9	20
Forester's Course.	Senior	.	1	.	2	...	..	..	3
	Junior	...	5	...	3	...	3	...	11
	TOTAL	9	32	..	13	9	9	18	54

9 The element of private students at the School varied as below:—

	Per cent.	No.
1887-88	12	5
1888-89	10	11
1889-90	25	18

CHAPTER III.

THE SCHOOL COURSES.

10. The year was divided into—

I. The Spring Term . . . . . April and May.
II. Summer Vacation . . . . . June.
III. Rains Term . . . . . July to October.
IV. The Winter Term, including fourteen days' vacation, 22nd December to 3rd January . . . November to March.

I.—The Spring Term.

11. The Deputy Director took the Junior English and Vernacular Classes on tour in the Jaunsar forests and gave a course of practical instruction in connection with the following works:—

(1) The boom across the Jumna at Dághpathar and the system of catching and landing sleepers floated singly from the hills above.
(2) The management of a depôt for timber in transit.
(3) The rafting of timber on the Jumna.
(4) The management of fuel coppices at the foot of the Himalayas.
(5) The management of oak coppices at an elevation of 4,500 to 6,000 feet.
(6) Management of the forests (oak and coniferous) of the Deoban working circle under the *régime* of Mr. Hearle's Working Plan.
(7) Management of the Mundali deodar forests under the *régime* of Mr. Fernandez's Working Plan.
(8) Tapping of the long-leaved and blue pines for resin.
(9) Management of forests of the long-leaved pine.
(10) Management of the Tehri-Garhwál leased deodar forests under the *régime* of Mr. Hearle's Working Plan.
(11) The reproduction of dedar generally.
(12) Timber transport in mountain forests, on coolies' heads, on mules, by sledge roads, by wet slide and by small mountain streams.
(13) The felling and conversion of trees on mountain slopes.

II.—Rains Term, 1st July to 31st October.

12. Saturdays and Sundays were, as usual, holidays for all the classes. From Monday to Friday the hours of instruction were distributed as follows:—

From	To	Number of hours.	English Course		Vernacular Course.	
			Senior.	Junior.	Senior.	Junior.
7 A.M.	8½ A.M.	1½	Drawing . .	Drawing .	Drawing . .	Drawing.
8½ A.M.	10 A.M.	1½	Forestry . .	Vegetable morphology and physiology.	Law on Mondays, Wednesdays and Fridays, and engineering on Tuesdays and Thursdays.	Mathematics.
10 A.M.	12 noon	2	Interval . .	Interval . .	Interval . .	Interval.
12 noon	1 P.M.	1	Soils and fodder .	Forestry on Mondays Wednesdays and Fridays; mathematics on Tuesdays and Thursdays.	Sylviculture .	Sylviculture.
1 P.M.	2 P.M.	1	Law . . .	Physical science .	Physical science and botany.	Physical science.
2 P.M.	3 P.M.	1	Engineering on Mondays, Wednesdays and Fridays.	Ditto .	Surveying . .	Surveying, Physical science on Mondays, Wednesdays and Fridays.
			From 16th September to 31st October 1889.			
12 P.M.	1 P.M.	1	Systematic botany on Mondays, Wednesdays and Fridays, and 12 to 1-30 P.M. on Tuesdays and Thursdays.			
1 P.M.	2 P.M.	1	Entomology on Mondays, Wednesdays and Fridays, and from 1-30 to 3 P.M. on Tuesdays and Thursdays.			

13. The number of hours per week devoted to the several subjects were as shown below:—

Subject.	English class.		Vernacular class.		Remarks.
	Senior.	Junior.	Senior.	Junior.	
Forestry	7½	3	5	5	
Vegetable morphology and physiology . .	...	7½	...	...	
Physical science	...	5	5	8	
Entomology	6	...	..	...	
Systematic botany	6	...	...	...	
Law	5	...	3	...	
Mathematics	...	2	...	7½	
Forest engineering	3	...	2	...	
Drawing	7½	7½	7½	7½	
Surveying	...	...	5	5	
Drill	2	2	2	2	
Total .	37	27	29½	35	

14. *Details of Teaching during the Rains Term.*—The detailed accounts of the instruction given during the rains term are extracted from the Deputy Director's and Instructors' notes.

Mr. Cotes gave a capital series of lectures on "Zoology" with special reference to entomology. Mr. Duthie repeated his course of lectures on "Systematic Botany."

Mr. Fernandez taught the Junior Class the structure and growth of plants in ninety-two lectures of an hour and a half each making a total of 148 hours. For Morphology Mr. Fisher's Manual was followed at the beginning, the students being made to read certain selected parts; but as that book would have carried the students too far, and it had been wished to complete the Physiology before going into camp (instead of, as in previous years, carrying it on into December), Mr. Fernandez gave his own notes, with the result that the Morphology was completed on the 22nd August, and Physiology on the 5th November. The latter subject could have been completed by the end of October, but as the Inspector General of Forests' visit to Dehra caused the term to be extended into November, the course of lectures was also extended. In Physiology Mr. Fernandez followed his own notes, as Mr. Fisher's were not available. In connection with this course it is noted that Babu Birbal has become very expert in cutting and mounting sections for the microscope, and gave an hour and a half of his time every day for the microscopical demonstration.

In Sylviculture Mr. Fernandez had charge of the Junior English Class, as it was the first time that this class was to be given a rapid synopsis of the whole of Sylviculture. He completed the course in forty-eight lectures of one hour each.

As regards the Vernacular Classes, the over-voluminous notes on Sylviculture of the preceding year were considerably condensed, but another year must elapse before the new condensed notes are ready for the press. For the first time instruction in Forest Law and Engineering was given to these classes. The three courses took up, on an average, two hours of Mr. Fernandez's time every day, while in Forest Ranger Har Swarup's case it absorbed the whole of his working day. The thorough manner in which Har Swarup accomplished his share of the work was proved by the very creditable way in which the Senior Vernacular students passed in March 1890.

15. *Cold Weather Term (9th November to 31st March).*—Up to 26th November, when Mr. Smythies took charge of the Junior men, Mr. Fernandez taught them Surveying, and at the same time took the Senior men through a course of theoretical and practical surveying, in a knowledge of which they were very deficient. During this period, in the forenoons, Mr. Banerji continued his course of Physical Science, while Mr. Fernandez taught Sylviculture in the lecture tent and charcoal-burning near the camp.

After Mr. Smythies' arrival and up to the Christmas vacation, Mr. Fernandez did the following work with the Senior students:—

Completion of the charcoal-burning.
The mensuration of timber trees and forests.

At the close of the Christmas vacation work was begun in Changa Manga, the whole of the tour, as laid out in the printed programme, being carried out. On return to Hardwar and while in camp, Mr. Fernandez completed the course of Utilization, only half of which had been done by Mr. Smythies during the preceding term; he also began and completed a course of lectures on Working Plans and on Forest Procedure and Accounts (both entirely new subjects), and completed the theoretical and practical instruction in Sylviculture.

During December Mr. Smythies was at Phandowala with the Junior English Class and delivered a course of lectures on Forestry, illustrated by work in the Eastern Dún forests. In January and February the Saharanpur forests were inspected specially with reference to the treatment of bamboo, sâl coppice,

and fire conservancy. From the 20th February to the close of the year the class was at Phandowala, and most of the time was occupied in a course of practical surveying.

In Return No. VI attached to this report, the programme of instruction in the forest during 1889-90 is detailed.

CHAPTER IV.

The Final Examinations and the Certificates and Prizes awarded.

16. The Final Examinations in October 1889 were conducted by the Inspector General of Forests, the Director, the Deputy Director, Mr. Duthie Mr. Cotes, and Assistant Inspector General of Forests.

In March the Examining Board included the Inspector General of Forests, the Director, the Deputy Director, Instructor, the Conservator of Forests, Central Circle, North-Western Provinces and Oudh, the Assistant Inspector General, Mr. Mercer, and Forest Rangers Har Swarup and Birbal.

The special examinations were held by the School Staff.

Special Examination.

For the Ranger's Certificate.

In Vegetable Morphology and Physiology for the five students who failed in March 1889 . . .	1st July 1889.
In Forestry for five out of the six students who failed in March 1889	2nd "
In Vegetable Morphology and Physiology for one student who failed on 1st July 1889	6th "
In Forestry for one student who failed in March 1889 and who was ill on 1st July 1889	7th "
In Mathematics for one student who failed in ordinary final examination	31st October 1889.

Ordinary Examinations.

For Ranger's Certificate.

Forest Zoology	5th and 7th October 1889.
Systematic Botany	28th "
Forest Law	4th and 5th November 1889.
Physical Science	6th and 7th "
Mathematics	31st October 1889.
Procedure and Accounts	7th and 8th March 1890.
Structure and Growth of Plants . . .	11th and 12th "
Forest Engineering	15th and 17th "
Forestry	24th "
Surveying	27th "

For the Forester's Certificate.

In Mathematics	29th to 31st October 1889.
Physical Science	5th March 1890.
Forest Law	8th "
Structure and Growth of Plants	12th "
Forest Engineering	17th "
Forestry	25th "
Surveying	27th "

The examinations were mainly *vivâ voce*, and as the questions asked were in tendency and extent similar to those printed in the 1888-89 report, the series of questions drawn up for the year 1889-90 are not published.

The results of the examinations were—

Running number.	Name of Student.	Province, Circle or Native State from which deputed.	Separate subject in which the Student passed with honours.	Prizes won.			Remarks.
				Subject.	Donor.	Value.	
			Date of Certificate, 7th July 1889.			R	
1	E. J. N. James	Bengal	.....	..	...	...	All these men failed to obtain their certificates at the regular examinations in March 1889.
2	Brindaban Chandra Ghoshal	Ditto					
3	Prasadi Lal	Central Circle, North-Western Provinces and Oudh					
4	E J Haslett	Ditto					
5	Kampta Prasad	Oudh Circle, North-Western Provinces and Oudh.					
6	Arokia Swami Pillai	Northern Circle, Madras					
7	Hanumanthulu	Ditto.					
8	Ratna Swami Pillai	Ditto.					
9	C. Haldane	Private student.					
			Certificate with Honours.				
1	M. Rama Rao	Southern Circle, Madras	Structure and growth of plants, systematic botany, physical science, forest law, surveying, entomology, forestry, forest engineering, procedure and accounts.	In all subjects, except Mathematics.	Government	170	
2	S. G. Pranjpe	Central Provinces	Structure and growth of plants, surveying, physical science, forest engineering, forest law, procedure and accounts, systematic botany, entomology and mathematics.				
			Ordinary Certificates.				
1	Gulab Rai	School Circle, North-Western Provinces and Oudh	Forestry, surveying, physical science, forest engineering, forest law, procedure and accounts, systematic botany.	Forestry, 2nd prize	Mr. Moir	30	
2	Krishna Nand Joshi	Central Circle, North-Western Provinces and Oudh.	Structure and growth of plants, forest engineering, procedure and accounts, systematic botany and entomology				
3	Nawazish Ali	Punjab	Surveying, forest law, procedure and accounts, systematic botany and entomology.				
4	G. W. Thompson	Southern Circle, Madras	Surveying, forest engineering, forest procedure and accounts, systematic botany, entomology and mathematics.	Mathematics	...	15	
5	Faiz Bakhsh	Central Provinces	Procedure and accounts, systematic botany, and entomology				
6	Nilantha Mukarjee	Assam	Forest engineering, forest law, procedure and accounts, systematic botany				
7	R Rama Rao	Northern Circle, Madras	Physical science, forest law, procedure and accounts.				
8	A. Tatham	Ceylon	Forest engineering, procedure and accounts, systematic botany and entomology.				
9	Aruri Ram	Punjab	Forest law, procedure and accounts, and entomology				

Forester's Certificate.

Running number.	Name of Student.	Province, Circle or Native State from which deputed.	Remarks.
1	Prithvi Singh . .	Sirmoor State . .	Prize in Forest Engineering, R10.
2	Telu Ram . . .	Bilaspur State.	
3	Ghulam Haidar . .	Punjab.	

The following students failed to obtain their certificates during the year :—

Running number.	Name of Student.	Province or Circle from which deputed.	Subjects in which failed.	Remarks.
1	D. Barrow . .	Oudh Circle, North-Western Provinces and Oudh.	Forestry, forest law, entomology.	
2	Ajudhya Parshad .	Alwar State . .	Forestry, physical science, forest law, entomology.	
3	Ram Chand . .	Ditto . .	Structure and growth of plants, forestry, physical science, engineering, botany, entomology, mathematics.	
4	Ananthrama Jyengar	Mysore State .	Structure and growth of plants, forestry.	
5	E. Powell . .	Private student .	Physical science.	
6	W. A. Hearsey .	Ditto . .	Structure and growth of plants, physical science, forest law, forest procedure and accounts.	
7	A William . .	Ditto . .	Structure and growth of plants, forestry, surveying, physical science, forest law, entomology.	

CHAPTER V.

General Remarks.

Athletics.

17. The native students were put through two hours' drill every week by Non-Commissioned Officers of the 2nd (P. W. O.) Gurkhas, while the European and Eurasian students attended two weekly drills of the Dehra Dun Mounted Rifles. Cricket and other games were encouraged.

Sports were held at the close of the rains term, and prizes were awarded as follows :—

Description of event.	Winners
100 Yards Race	N. C. McLeod. J. P. Haslett.
Broad Jump	J P. Haslett. Prithvi Singh.
Hurdle Race	J. P. Haslett. E. Powell. Prithvi Singh.

Description of event.	Winners.
Throwing Cricket Ball	A. Tatham. M. G. Rama Rao.
220 Yards Race (for Natives only) . . .	Prithvi Singh. C. Appya.
Putting the Shot	N. C. McLeod. W. Ferguson.
High Jump	Prithvi Singh. J. P. Haslett. W. Ferguson.
Three-quarter Mile Race	J. P. Haslett. W. Ferguson. W. Gilmore.
Menagerie Race	J. P. Haslett. A. William.

There was also a Foot Hurdle Race for the troopers of the Viceroy's Body-Guard, and a race in full marching order for the riflemen of the 2nd (P. W. O.) Gurkhas. The band of the 2nd Gurkhas was kindly lent for the occasion by Major Hill.

Health of Students.

18. The health of students throughout the year was generally good. A Hospital Assistant has been appointed to the School, but it would be well to place the Forest School in medical charge of the Civil Surgeon of Dehra, and arrange for the proper supervision of the Hospital Assistant's work and of sanitation generally. The present arrangement is most unsatisfactory.

Accommodation.

19. The erection of the second block of quarters referred to in last year's report was postponed in favour of more urgent works. The two-storeyed building for a lecture room and museum was sanctioned at an estimated cost of R13,701, and was under construction at the close of the year. The rent of the block of residential quarters amounted to R352, which sum was credited to the Government of the North-Western Provinces and Oudh, by whom the capital charge of R14,643 for the building was disbursed. The thorough repair of the main school building including the substitution of arched floors to the upper storey and of a galvanized iron roof at a cost of R19,637, was sanctioned, and the work was in progress at the close of the year.

The erection of a dispensary with a ward for sick students and quarters for the Hospital Assistant at a cost of R6,239 has been proposed.

The Forest Survey Office has been removed from the Forest School building and provided with accommodation in a hired house in Dehra.

When the second block of quarters and the dispensary are erected, the School buildings will provide all the accommodation required for the staff and the full number of students (about eighty) it is proposed at present to entertain.

The capital account of cost of buildings as received from the Public Works Department is given in Return No. III, and the expenditure may be summarized as follow:—

		R	R
Main buildings =	Main building	86,823	
	Quarters for students . . .	15,131	
	Accessory buildings . . .	2,222	
			1,04,176
Quarters in the Dehra Dun, Saharanpur and Jaunsar Divisions for the school while on tour, about			5,886
		TOTAL .	1,10,062
Add—Proposed additional quarters and dispensary . . .			19,686
		GRAND TOTAL .	1,29,748

Manuals.

20. The issue of Manuals is still in progress. The English text-books issued or in hand consist of—

Issued—

i. Warth's Notes on Physical Science.
ii. Fisher's Notes on Vegetable Morphology.
iii. Fernandez's rough draft of a Manual of Indian Sylviculture.

Under issue—

iv. Fernandez's Notes on Forest Utilization.
v. Hobart Hampden's Forest Engineering Notes.
vi. Broun's Notes on Forest Law.

Still wanting—

vii. Working Plans.
viii. Fotest Entomology and the General Principles of Zoology.

Carter's "Mensuration of Trees and Timber" has been published in pamphlet form and is in use by the students.

The Urdu text-books are—

Issued—

Fernandez's course of Physical Science, Botany, and Forestry for the Vernacular Class, Parts I and II.

In hand—

Part III of above.
Har Swarup's Notes on Forest Law and Engineering.

It is hoped some special aid will be afforded by Government in the preparation and issue of the text-books required, as the absence of these books causes much inconvenience and loss.

Distinctions gained by passed students.

21. During the year the undermentioned passed students received promotions to the higher grades as follows:—

Year of Certificate.	NAME OF STUDENT.	Promoted to	On salary of .
			R
1889 . .	R. Quinnell	Sub-Assistant Conservator of Forests, Bengal .	150
1889 . .	E. J. N. James	" " " " .	150
1889 . .	V. Alvar Chetty	" " " Madras .	150
1889 . .	T. N. Hearsey	" " " " .	150
1889 . .	D. L. K. Calderwood . . .	" " " Burma .	150

Contributions to the Museum.

22. Contributions during 1889-90 were—

Articles presented to the Forest School Museum, 1889-90.

No	Names of Articles.	Number of articles.	Name of Presenting Officer.
1	*Andropogon schœnanthus*, sold at Hardwar as *Mirchia gandh*. Rose oil is distilled from this grass.	1 bundle	Mr. A. Smythies.
2	Olive wood pieces from trees planted in the Hill Fort of Shewner at Junnar in the Poona Division by Dr. Gibson about forty years ago.	1	Divisional Forest Officer, Poona.
3	*Shorea Assamica*, specimen of wood 6" × 4" × 2"	1	G Mann, Esq., Conservator of Assam.
4	Eucalyptus seeds of twenty kinds for sowing in the garden.	20 kinds	Government Botanists, Melbourne.
5	forty lily bulbs for garden, *Lilium nilgheriensis* for lectures	40	Mr. J. S. Gamble, Conservator of Forests.
6	Iron and quartz crystals, cube and pyramids	25	S Hanumanthulu, Forest Ranger.
7	Garnet, a large crystal presented by a native gentleman at Jeypore.	1	Mr. E. E. Fernandez, Deputy Director
8	Mahogany round pieces from Balrámpur, Bengal	1	Mr. W. R. Fisher.

23. The forest gardens at Dehra and Kaunli have been in charge of Forest Ranger Birbal during the year, and they are in excellent order.

The area of the two gardens is as follows:—

	Acres.	Roods.	Poles.
Dehra	4	0	0
Kaunli	5	0	0

The receipts and charges were—

Revenue.

	1889-90 R.	a.	p.	1888-89 R.	a.	p.
Sale of fruit and forest trees	282	6	6	68	12	0
„ flowers in pots	44	7	0	25	6	6
„ vegetables	94	2	9	52	14	7
„ fruit	122	0	0	180	6	2
„ grass	102	13	6	82	3	4
„ wood	32	5	6	10	8	6
Total	678	3	3	420	3	6

Expenditure.

Permanent establishment of *malis*	420	0	0	396	0	0
Daily labour on watering, weeding, &c.	110	2	8	318	4	1
Rent	240	1	0	238	1	0
Water-tax	31	3	6	57	7	6
Flower pots	50	13	3	40	11	3
Miscellaneous	115	8	11	14	10	8
Total	967	13	4	1,065	2	6
Net cost of garden	289	10	1	644	15	0

The following plants, &c., were issued free of charge:—

132 Chir valued at	16	8	0
4 Mangoes	1	8	0
Total	18	0	0

The stock of trees now in the garden is as follows:—

	1889-90	1888-89
Fruit trees	400	419
Flowers in pots	1,757	882
Forest trees	143	316

The sowing of seed of various forest trees has been continued with varying success.

The condition of the gardens is satisfactory, and in a few years they should prove a source of direct profit, besides fulfilling their original object of showing what forest gardens should be.

24. The question of the strength of the School Staff which was referred to last year, has been the subject of special local enquiry by the Secretary to the Government of India and the Inspector General of Forests, and it is understood arrangements are under consideration which will raise the teaching strength of the School. Practically the staff has stood as follows:—

IN THE RAINS TERM

The School Staff.

	Number
The Deputy Director and Instructor	2
The Curator of the School Museum	1

Special Sources.

Professors from other departments	3
Forest Survey Officers	3
North-Western Provinces and Oudh Divisional Officers	2
Range Officer	1
TOTAL	12

During the practical course the Deputy Director and Instructor have had the charge of the four classes.

The strength of the staff during the rains term looks sufficient, but it must be noted that save in the case of the Deputy Director changes have been frequent, and that even up to the first day of the term it is never certain who will be available for the different courses of lectures.

The result is that the teaching is often irregular and is not as systematic as it should be.

Turning to the most important portion of the school course, the four terms spent in the forests aggregating about eleven months, when lectures alternate with practical demonstrations, two officers at the most have had to attempt to instruct the whole body of Students and the result need not be dwelt on.

The strength of the School now stands as follows:—

	Number
Senior English Class	32
Junior " "	29
Senior Vernacular Class	8
Junior " "	9

To give any adequate combined theoretical and practical instruction at least five officers (of whom one might be in the Sub-Assistant and one in the Ranger's grade) are required.

In addition it seems advisable to lengthen the course of the Senior Class by two months (April, May, and possibly June), so that after completing the ordinary course and passing the Final Examinations the Senior students may be further instructed in Practical Forestry. For this purpose some of the men might be attached to selected divisions in the North-Western Provinces and Oudh forests, and the remainder work in Jaunsar or in part accompany the Junior Class on tour.

25. It would be ungracious to close these notes without commending the services of the School Staff—permanent and temporary—to the very favourable consideration of Government. The increased popularity of the School evinced by the steady increase in numbers and by the special excellence of selected old students like Forest Rangers Har Swarup and Keshavanand, who have by years of good work proved the practical utility of the school course, and of students like Messrs. M. R. Rama Rao and Paranjpe, who passed out this year with high honours, testify to the zeal and ability shown by the school officers, and especially by the Deputy Director, Mr. Fernandez.

C. BAGSHAWE,

Director, Forest School.

RETURN No. I.

Nominal List of Students who attended the School during the whole or part of the year.

No.	Names.	Grade.	University or other qualifying examination passed.	Province or Circle.	REMARKS.
		RANGER'S COURSE.			
		Men who had failed to obtain certificate in March 1889.			
1	Arokia Swami Pillai .	Forester . .	Matriculation, Madras .	Northern Circle, Madras.	
2	Brindaban Chandra Ghoshal.	Ditto . .	Entrance, Calcutta . .	Bengal.	
3	Haldane, C. . .	Private student .	School Entrance Examination.	...	
4	Hanuman Thuhulú .	Forester . .	Matriculation, Madras .	Northern Circle, Madras.	
5	Haslett, E. . .	Pro. Forest Ranger.	Entrance, Calcutta . .	Central Circle, N.-W. P. & Oudh.	
6	James, E. J. N. .	Pro. Sub-Assistant Conservator	None	Bengal.	
7	Kampta Prasada .	Forester . .	Entrance, Calcutta . .	Oudh Circle, N.-W. P. & Oudh.	
8	Prasadi Lal . .	Pro. Forest Ranger.	Ditto . .	Central Circle, N.-W. P. & Oudh.	
9	Ratna Swami Pillai .	Forester . .	Matriculation, Madras .	Northern Circle, Madras.	
		SECOND YEAR'S COURSE.			
	Permanent Students.				
1	Nilkantha Mukerji .	Forest Ranger .	Entrance, Calcutta . .	Assam.	
2	Krishna Nand Joshi .	Pro. Forest Ranger.	Ditto . .	Central Circle, N.-W. P.	
3	Gulab Rai . .	Forest Apprentice	Ditto . .	School Circle, N.-W. P.	
4	Barrow, D. . .	Forester . .	Ditto . .	Oudh Circle, N.-W. P.	
5	Aruri Ram . .	Ditto . .	Entrance, Punjab . .	Punjab.	
6	Nawazish Ali . .	Ditto . .	Ditto . .	Ditto.	
7	Paranjpe, S. G. .	Pro. Sub-Assistant Conservator	B. A. Examination, Calcutta.	Central Provinces.	
8	Faiz Bakhsh . .	Forest Apprentice	Entrance, Calcutta . .	Ditto.	
9	Rama Rao, K. . .	Forester . .	Matriculation, Madras .	Northern Circle, Madras.	
10	Thompson, G. W. .	Forest Ranger .	...	Southern, Circle, Madras.	
11	Rama Rao, M. .	Ditto .	Matriculation, Madras .	Ditto.	
12	Tatham, A. . .	Pro. Assistant Conservator.	...	Ceylon.	
	Students from Native States.				
1	Ajodhya Prasada .	Forest Apprentice	Entrance, Calcutta . .	Alwar State.	
2	Ram Chand . .	Ditto .	Ditto . .	Ditto.	
3	Ananta Rama Iyengar	Ditto .	Matriculation, Madras .	Mysore.	
	Private Students.				
1	Scott, W R. . .	...	School Entrance Examination.	Punjab.	
2	William, A. . .	...	Ditto .	N.-W. P.	
3	Hearsey, W. A. .	...	None	Ditto.	
4	Watts, A. C. . .	...	Do.	Travancore.	
5	Powell, E. . .	...	Do.	N.-W. P.	

RETURN No. I—*contd.*

Nominal List of Students who attended the School during the whole or part of the year—contd.

No.	Names.	Grade	University or other qualifying examination passed.	Province or Circ'e.	Remarks.
			Forester's Course.		
	Government Student.				
1	Gulam Haidar . .	Forester . .	Middle Class . . .	Punjab.	
	Students from Native States.				
1	Prithvi Singh . .	Forester . .	Middle Class . . .	Sirmoor State.	
2	Telui Ram . .	Ditto . .	Ditto . . .	Bilaspur.	
			First Year's Class.		
	Government Students.				
1	Gurú Das Chatterji .	Bengal . .	F. A. Examination, Calcutta.	Bengal.	
2	Jadú Nath Raya .	Ditto . .	Ditto ditto.	Ditto.	
3	Upendra Nath Kanjilal.	Forest Ranger .	Entrance, Calcutta . .	Assam.	
4	Netra Ballabha Tiwari.	Pro. ditto .	Ditto . .	Central Circle, N.-W. P.	
5	Ryan, F. . .	Ditto .	Entrance, Calcutta, and Rurki Engineer Class Entrance.	Ditto . .	Joined the school as private student; appointed Government student in November 1889.
6	Mehar Chand . .	Forester . .	Entrance, Punjab . .	Punjab.	
7	McLeod, N. C. .	Pro. Sub-Assistant Conservator.	Entrance, Calcutta, Rurki Engineer Class Entrance.	Central Provinces.	
8	Gilmore, W. G. .	Forest Ranger .	...	Ditto.	
9	Haslett, J. P. . .	Ditto .	Entrance, Calcutta . .	Ditto .	Joined the school as private student, appointed Government student in March 1890.
10	Rajendra Lal Shawe .	Forester . .	Ditto . .	Ditto.	
11	Howell, A. T. C. .	Ditto . .	Agricultural Test, Saidapet College.	Ditto.	
12	Kalyanarama Iyer, V.	Forest Ranger .	Ditto ditto .	Northern Circle, Madras.	
13	Rama Rao, A. R. .	Forester . .	Ditto ditto .	Southern Circle, Madras.	
14	Ferguson, W. . .	Pro. Assistant Conservator.	...	Ceylon.	
15	Hansard, J. St. L.	Ditto .	...	Ditto . .	Rejoined from leave on 1st March 1890.
	Students from Native States.				
1	Rama Rao, M. G. .	Forest Apprentice	B. A. Examination, Madras	Mysore State.	
2	Heera Singh, B. .	Ditto	Ditto ditto	Ditto.	
3	Appya, C. . .	Ditto	Ditto ditto	Ditto.	
4	Srinivas Rao, M. .	Ditto	Matriculation, Madras .	Ditto.	
5	Srinivas, H. . .	Ditto	Matriculation and Saidapet College.	Ditto.	
	Private Students.				
1	Parsons, S. . .	...	Forest School Entrance Examination.	N.-W. P.	
2	Hunt, A. . .	...	Ditto ditto	Do.	
3	Lowis, R. F. . .	...	Ditto ditto	Do.	

RETURN No. I—*concld.*

Nominal List of Students who attended the School during the whole or part of the year—concld.

No.	Names.	Grade.	University or other qualifying examination passed.	Province or Circle.	Remarks.
	Private Students—continued)				
4	Inmati Shama Rao .	...	Matriculation, Madras .	Bengal.	
5	Narsinha Murti Rao .	...	Ditto . . .	Mysore.	
6	Srinivasulu Naidu .	...	Ditto . . .	Ditto.	
7	Punno Swami Mudliar.	...	Ditto . . .	Ditto.	
8	Jiwa Ram . .	...	Entrance, Punjab . .	Punjab.	
9	Medhi Hussain .	...	Entrance, Calcutta . .	N.-W. P. . .	Resigned on 5th July 1889.
			FORESTER'S COURSE.		
	Government Students.				
1	Birbal Singh . .	Forester . .	Anglo-Vernacular Middle Class.	School Circle, N.-W. P. & Oudh.	
2	Bhaya Lal Dube .	Ditto . .	Ditto ditto .	Central Provinces.	
3	Dhondo Narayan .	Ditto . .	...	. Ditto.	
4	Ram Prasada Tiwari .	Ditto .	...	Ditto.	
5	Narayan Chandra Datt.	Ditto . .	...	Ditto.	
	Students from Native States.				
1	Jehangiri Lal . .	Forester . .	...	Kotaha State.	
2	Nand Lal . .	...	...	Nalagarh.	
3	Pyare Lal . .	...	...	Kalsia.	
	Private Students.				
1	Jagan Nath . .	...	...	Punjab.	
2	Sansar Chand . .	...	...	Ditto.	
3	Ali Akbar Shah .	...	...	Ditto . .	Absconded on 3rd July 1890.

RETURN No. II.

Statement showing the number of Students who have passed out of the Forest School since the first course of instruction.

Year.	Number of Students who have qualified.				Total certificated students.	Officers who attended only a portion of course.	Students who left without certificates.	Remarks.
	Sub-Assistant Conservator's certificate.	Ranger's certificate.		Forester's certificate.				
		With honours.	Ordinary					
1881	2	...	3	...	5	6	2	
1882	1	...	3	1	5	10	...	
1883	...	2	10	3	15	2	...	
1884	...	2	12	1	15	3	1	
1885	...	1	8	3	12	1	4	
1886	...	4	14	8	26	...	6	
1887	...	...	..	...	...	...	...	
1888	...	1	15	6	22	...	1	
1889	..	2	9	3	14	...	...	
TOTAL .	3	12	74	25	114	22	14	

RETURN No. III.

Financial Statement showing works connected with the Forest School at Dehra as shown in the Public Works Department Secretariat Files and Annual Finance Accounts of the Public Works Department from 1879-80 to 1889-90.

I.

Particulars.	Sanctioned Estimates.		Actual Expenditure.		Remarks.
	Authority.	Amount.	Amount.	Period.	
		R	R	R	
1. Main building acquired by purchase.	Revenue Department G. O. No. 407, dated 1st May 1879.	20,000	20,000	1879-80 .	Expenditure incurred by the Revenue Department.
2. Special repairs, additions, &c., to main building.	P. W. D. G. O. No. C. 808 B.R., dated 5th July 1881.	13,237	12,773	1879-80 . 1880-81 & 1881-82.	Estimate includes the following:— R European privy . . 318 Native " . . 394 Superintending Engineer, 1st Circle, has remarked in his No. 18, dated 4th January 1888, that the "building with its cook-house (*i.e.*, first block of *Students' quarters* and the out-houses thereto attached) has been finished for R13,385." Forest Department contributed R12,212; the balance was met by Provincial. Expenditure incurred by the Public Works Department during— R a. p. 1879-80 . 1,276 9 0 1880-81 . 4,695 5 2 1881-82 . 6,801 4 9 TOTAL . 12,773 2 11
3. Certain additions to Forest School. 4. Certain repairs to Forest School.	Revenue Department G. O. No. 404, dated 19th May 1883.	... ...	800 385	1883-84.	Expenditure incurred by the Revenue Department.
5. Tent godown and store-room.	P. W. D. G. O. No. C. 2069 B. R., dated 13th May 1885.	1,418	1,418	1884-85 .	Forest contributed R1,000; the balance was debited to Provincial.
6. First set of students' quarters.	P. W. D. G. O. No. C. 2747 B. R., dated 23rd October 1886.	14,643	14,643*	1884-85 . 1885 86 & 1886-87.	The work was completed in October 1886. The estimate includes the following:— Cook-house for 32 students, R2,558. R Latrines . . 532 *1884 85 . . 8,730 1885-86 . . 8,722 1886-87 . . 2,800 TOTAL . 14,643
7. Collection of materials for second set of students' quarters	P. W. D. G. O. No. C. 2747 B. R., dated 23rd October 1886.	2,810	2,757	1886-87 . 1887 88 & 1888-89.	Detailed estimate sanctioned in Public Works Department G. O. No. C. 2103 B R, dated 4th June 1889. *Vide* item 12 below.
8. Improvement of latrines.	...	...	804	1887-88 .	The expenditure was incurred by the Forest Department and debited to Provincial Budget.
9. Improving ventilation in existing block of students' quarters.	P. W. D. G. O. No. 629-31, dated 28th March 1888.	487	488†	1888-89 .	† Referred to in para. 7 of Government of India, Public Works Department, No. 170 B., dated 24th March 1888.
10. Constructing an upper-storey room over the herbarium and seed room.	P. W. D. G. O. No. C. 3347 B.R., dated 21st September 1887.	2,511	...	...	Estimate not yet sanctioned.
11. Adding new lecture room and upper-storey room, &c.	P. W. D. G. O. No. C. 2100 B. R., dated 4th June 1889.	13,701	13,701	To end of 1889-90.	This work is in hand. The expenditure to end of 1889-90 is approximate.

RETURN No. III—*contd.*

Financial Statement showing works connected with the Forest School at Dehra, &c.—contd.

Particulars.	Sanctioned Estimates.		Actual Expenditure.		Remarks.
	Authority.	Amount.	Amount.	Period.	
		R	R		
12. Constructing second set of quarters.	P. W D. G. O No. C. 2103 B R., dated 4th June 1889.	11,686*	...	...	* This amount *excludes* the R2,819 spent in the collection of materials. *Vide* item 7 above. The estimate includes (1) cook-house block R2,485, and (2) a set of open bathing platforms, R100.
13. Quarters for Hospital Assistant and Dispensary	...	...	...	...	Project under consideration. Estimated cost R6,239.
14. Special repairs to the Forest School at Dehra.	...	16,937	8,034	1889-90 .	Estimate sanctioned in P. W. D. G. O. No. 4027 B. R., dated 6th December 1889. The expenditure to end of 1889-90 is approximate.

Expenditure shown in Statement A and B forwarded with Colonel Bailey's No. 362, dated 8th March 1889, received with Superintending Engineer, 1st Circle's No. 1911, dated 13th May 1889.

II.
Statement A.

Years.		Extraordinary repairs.	Ordinary repairs.	
		R	R	
1879-80 .	Ordinary repairs were executed by the Forest Department; the extraordinary repairs were executed by the Public Works Department.	6,060*	...	* Included in item 2 of Statement I on page 18
1880-81 .		...	14	
1881-82 .		7,212†	663	† Included in item 2 of Statement I on page 18.
1882-83 .		..	386	
1883-84 .		...	364	
1884-85 .		..	428	
1885-86 .		...	112	
1886-87 .		...	300	
1887-88 .		...	263	
1888-89, approximate .		...	425	
Total .	..	13,272	2,955	
		16,227		

III.
Statement B.

Particulars.	Years.	Purchase.	Additions and alterations.	
Purchase of main buildings.	1879-80	20,000‡	...	‡ Included in item 1 of Statement I on page 18.
Constructing carpenters' shed.	1880-81	...	210	
Fittings to main buildings.	1881-82	...	795	
Conversion of cook-house into laboratory and erection of a plant-shed at east end of main building.	1881-82	...	3,103	
A range of students' quarters.	1882 83	...	8,000	Included in item 6 of Statement I on page 18.
Verandah to laboratory.	1882-83	...	791	
Purchase of Saharanpur Division Office.	1885-86	1,000	...	
Alteration of main buildings.	1885-86	...	893	
Alteration of main buildings.	1886-87	...	560	
Construction of corrugated iron-roofed shed for carpenters.	1887-88	...	1,183	
Total	...	21,000	15,535	
		36,535		

RETURN No. IV.

Statement of Total Expenditure on the Forest School since its establishment and to the end of March 1890.

Items.	Expenditure to the end of March 1889.	Expenditure from April 1889 to March 1890.	Total.
Capital Expenditure.	R	R	R
Buildings	39,929	...	39,929
Observatories	4,337	...	4,337
TOTAL	44,266	...	44,266
Annual Expenditure at School.			
Salaries and travelling allowances of officers and establishment	1,30,778	18,968	1,49,746
Special allowance of Director	15,436	2,542	17,978
Honoraria	13,255	2,405	15,660
Prizes	1,112	85	1,197
Stipends	3,587	...	3,587
Survey and drawing instruments	14,910	687	15,597
Chemicals and apparatus	3,329	108	3,437
Books, periodicals and diagrams	4,670	295	4,965
Miscellaneous (including museum, herbarium, laboratory, gardens and rent of houses, &c.)	28,758	4,556	33,314
TOTAL	2,15,835	29,646	2,45,481
GRAND TOTAL, INCLUDING CAPITAL EXPENDITURE	2,60,101	29,646	2,89,747

RETURN No. V.

Annual Expenditure debited to Provincial Budgets.

Province or Circle.	Expenditure to end of March 1889	1889-90.			Grand Total.	Remarks.
		Pay.	Travelling allowance.	Total.		
	R	R	R	R	R	
Government of Madras	45,114	3,086	1,731	4,817	49,931	
" Bengal	24,131	1,031	756	1,787	25,918	
" N.-W. P. and Oudh	13,191	1,770	669	2,439	15,630	
" Punjab	24,536	1,075	532	1,607	26,143	
" Central Provinces	15,923	4,586	1,405	5,991	21,914	
" Assam	7,485	1,294	374	1,668	9,153	
" Burma	14,994	73	331	404	15,398	
" Ceylon	1,279	4,331	537	4,868	6,147	
" Berar	3,105	...	...	...	3,105	
" Coorg	2,581	...	...	...	2,581	
" Ajmere	664	...	...	..	664	
TOTAL	1,53,003	17,246	6,335	23,581	1,76,584	
Native States.						
Baroda	3,094	...	...	...	3,094	
Jaipur	5,561	..	...	...	5,561	
Patiala	3,592	40	135	175	3,767	
Partabgarh	1,599	...	...	...	1,599	
Mysore	4,006	...	...	...	4,006	
Rewah	1,594	...	...	...	1,594	
Sirmur	330	300	121	421	751	
Alwar	...	500	...	500	500	
TOTAL	19,776	840	256	1,096	20,872	
GRAND TOTAL	1,72,779	18,086	6,591	24,677	1,97,456	

RETURN No. VI.

Programme of work done and localities visited by the English-speaking Students of the Imperial Forest School during the outdoor season of 1889-90.

SENIOR CLASS—TWENTY MEN.

Month.	Day of the month.	Day of the week.	Locality.	Work and distribution of time.
November 1889	9th	Saturday	Phandowala, in the Dún.	March out from Dehra.
	10th	Sunday	Ditto.	
	11th to 30th	Monday to Saturday.	Ditto	From 7-30 to 9 A.M.—Lectures on Forestry. From 11 A.M. to 3 P.M.—Instruction in Surveying.
December 1889	1st	Sunday	Ditto.	
	2nd to 7th	Monday to Saturday.	Ditto	Instruction in Charcoal-burning.
	8th	Sunday	Ditto.	
	9th to 14th	Monday to Saturday.	Ditto	From 7-30 to 9 A.M.—Lectures on Enumeration and Valuation Surveys, and Examination of Forests. From 11 A.M. to 3 P.M.—Marking trees in improvement fellings. Charcoal-burning continued.
	15th	Sunday	Ditto.	
	16th to 18th	Monday to Wednesday.	Ditto	Enumeration surveys and examination of compartments (both out-door and in-door portions of the work).
	19th	Thursday	Ramgarh	March. Examine results of old improvement fellings.
	20th	Friday	Dehra	March before breakfast. Lecture on Forest Accounts and Office Routine in afternoon.
	21st	Saturday	Ditto	Forest Accounts and Office Routine.
	22nd	Sunday	Ditto.	
(From 23rd, Monday, to 4th January, Monday, Christmas Holidays.)				
January 1890	4th	Saturday	Changa Manga plantation in the Panjáb.	On Saturday, the 4th January, every member of the class will be present at Changa Manga Plantation in the Panjáb, and the roll will be called by the Deputy Director at that place at 4 P.M. on the 4th January.
	5th	Sunday	Changa Manga.	
	6th to 11th	Monday to Saturday.	Ditto	Lectures and out-door work in the plantation daily under Deputy Director.
	12th	Sunday	Ditto.	
	13th	Monday	Lahore	By rail.
	14th	Tuesday	Shadara *cum* Jugian.	In one day.
	15th	Wednesday	Leave for Ajmere *viâ* Ferozpur.	By rail.
	16th to 21st	Thursday to Tuesday.	Ajmere	Visiting the forest lands in neighbourhood, and out-door work there under Deputy Director.
	22nd	Wednesday	Jeypore	By rail.
	23rd	Thursday	Ditto	Inspecting the sand-binding operations near Jeypore.
	24th	Friday	Ditto.	
	25th	Saturday	Delhi	By rail.
	26th	Sunday	Ditto.	
	27th	Monday	Hardwár	By rail.
	28th	Tuesday	Ditto	Bamboo forest near by.
	29th	Wednesday	Ditto	Patri forest.
	30th	Thursday	Beribára	March and out-door lectures.
	31st	Friday	Ditto	Out-door lectures and bamboo inspections.
February 1890	1st	Saturday	Dholkhand	March.
	2nd	Sunday	Ditto.	
	3rd to 8th	Monday to Saturday.	Ditto	For the rest of the week the class will here study fire conservancy and visit the fellings.
	9th	Sunday	Ditto.	
	10th	Monday	Mohand	March.
	11th	Tuesday	Asarori	Ditto.
	12th	Wednesday	Phandowala	Ditto.
	13th	Thursday	Lachiwála	March. Examining Nágsidh forest on the way.
	14th	Friday	Kansrao	March.
	15th	Saturday	Gohri on the Ganges.	
	16th	Sunday	Ditto.	
	17th to 23rd	Monday to Sunday.	Ditto	Coppice operations, khair and sissu island forest, and rafting operations.
	24th	Monday	Bhogpur	March. *N.B.*—The lectures will go on daily, except when camp is being moved, and the Deputy Director will decide from what date the outdoor work shall be taken in the morning and the lectures in the afternoon, as the state of the weather in February may suggest.
	25th	Tuesday	Thano	March.
	26th	Wednesday	Ditto	Ditto.
	27th	Thursday	Lachiwála	Ditto.
	28th	Friday	Phandowala.	

RETURN No. VI—*continued.*

Programme of work done, &c., during 1889-90—continued.

Month.	Day of the month.	Day of the week.	Locality.	Work and distribution of time.
March 1890 . .	...	...	Phandowala . .	During all March the Final Examinations and the teaching of Taxidermy will be carried on. At the end of March the class (senior) will be disbanded, and the men sent to their homes and provinces.
			JUNIOR CLASS—TWENTY-SEVEN MEN.	
November 1889 .	2nd	Saturday .	Phandowala . .	March. Out with Senior Class.
	3rd to	Sunday to	Ditto . .	Throughout November and December the class will be employed in learning surveying and levelling. Every morning lectures in Forestry with Deputy Director.
December . .	22nd	Sunday.		
(From Monday, 23rd December 1889, to 4th January 1890, Christmas Holidays.)				
January 1890 .	4th	Saturday .	Hardwár . .	On Saturday, the 4th January 1890, the class will meet at Hardwár, and the officer in charge will call the roll at 4 P.M.
	5th	Sunday .	Ditto.	
	6th	Monday .	Ránipur . .	March.
	7th	Tuesday .	Ditto . .	Bamboo forests near Ránipur.
	8th	Wednesday .	Beribára . .	March.
	9th	Thursday .	Ditto . .	Forest work near.
	10th to	Friday to	Dholkhand . .	March.. At Dholkhand fire conservancy and coppice operations carried out with their own hands over about quarter of an acre, and together with the lectures will occupy them till the 21st January.
	21st	Tuesday.		
	22nd	Wednesday .	Mohand . .	March.
	23rd	Thursday .	Ditto . .	Visit a spot which, after some years of fire protection, was burnt last year. Effects of fires in such localities to be noted carefully.
	24th	Friday .	Asarori . . .	March.
	25th	Saturday .	Karwápani . .	Here and in the neighbourhood forest improvement fellings will be specially taught and ordinary lectures.
	26th to	Sunday to	Ditto.	
	13th	Thursday .		
February 1890 .	14th	Friday .	Jhajra . . .	March.
	15th	Saturday .	Dehra . . .	Ditto.
	16th	Sunday .	Ditto.	
	17th	Monday .	Ramghar . .	Ditto.
	18th	Tuesday .	Ditto.	
	19th	Wednesday .	Ditto.	
	20th	Thursday .	Phandowala . .	Ditto.
	21st to	Friday to	Ditto . .	During all March the two classes must be together. The Juniors will, during all March and up to 10th April, be taught Forest Engineering in lectures and Forestry and Road-making, Culvert building, &c., daily out of doors.
	10th	Thursday.		
April 1890 .	11th to	Friday to	Dehra . . .	Into Dehra, getting warm clothing and preparing for tour in the hills.
	15th	Tuesday.		
	16th	Wednesday .	Sahanspur . .	March.
	17th	Thursday .	Dhakpathar.	
	18th	Friday .	Tilwari . . .	Evening march.
	19th	Saturday .	Ditto . . .	Coppicing operations visited.
	20th	Sunday .	Ditto.	
	21st	Monday .	Saiya . . .	March.
	22nd	Tuesday .	Korwa . . .	Ditto.
	23rd	Wednesday .	Chakráta . .	March.
	24th	Thursday .	Ditto . . .	Working forests for fuel.
	25th	Friday .	Ditto . . .	
	26th	Saturday .	Deoban . . .	March.
	27th to	Sunday to	Ditto . . .	Working of forests of oak and fir for fuel, and examining results of working during past twenty years.
	30th	Wednesday.		
May 1890 . .	1st	Thursday .	Kotikanásar . .	Examining sowings and march.
	2nd to	Friday to	Bodyár . .	Artificial reproduction of deodar under unfavourable conditions. Conditions regulating distribution of deodar forest.
	4th	Sunday.		
	5th	Monday .	Deoban.	
	6th to	Tuesday to	Mandáli . .	Natural regeneration in growth of deodar and examine results of operations effected in accordance with working plan.
	11th	Sunday.		
	12th to	Monday to	Kathián . .	Natural and artificial regeneration of deodar with blue pine. Tapping of blue and long-leaved pines for resin.
	18th	Sunday.		
	19th	Monday .	Thadiyár . .	Natural regeneration of *Pinus longifolia* and system of launching and rafting in Tons.
	20th	Tuesday .		
	21st to	Wednesday to	Deota . .	Results of working deodar forests for last eighteen years. Construction and working of sledge road.
	26th	Monday.		
	27th	Tuesday .	Lambatach . .	Struggle for existence between deodar and blue pine; also disastrous results of wholesale killing out of firs.
	28th	Wednesday .	Ditto.	
	29th	Thursday .	Deota.	
	30th	Friday .	Ditto.	
	31st	Saturday .	Ditto . . .	Session closes and vacation begins.

ANNUAL FORM No. 58.—(*Prescribed.*)

FOREST DEPARTMENT, INDIA, FOREST SCHOOL.

Summary of Revenue of the different Divisions during 1889-90.

BUDGET HEADS.	Direction.	Division	Division.	Division.	Division.	Division	Division.	Division.	Total.
RECEIPTS.									*R a. p.*
I.—TIMBER AND OTHER PRODUCE REMOVED FROM THE FORESTS BY GOVERNMENT AGENCY—									
a. Timber									
b. Firewood and charcoal									
c. Bamboos									
d. Sandal wood									
e. Grass and other minor produce									
II.—TIMBER AND OTHER PRODUCE REMOVED FROM THE FORESTS BY CONSUMERS OR PURCHASERS—									
a. Timber									
b. Firewood and charcoal									
c. Bamboos									
d. Grazing and fodder grass									
e. Other minor produce									
III.—DRIFT AND WAIF WOOD AND CONFISCATED FOREST PRODUCE									
IV.—REVENUE FROM FORESTS NOT MANAGED BY GOVERNMENT—									
a. Duty on foreign timber and other forest produce									
b. Revenue from shared and private forests									
V.—MISCELLANEOUS—									
a. Fines and forfeitures	...	...	...	...	...	...	...	...	0 11 0
b. Refunds	...	...	...	...	...	...	...	...	.....
c. Other sources	...	...	...	...	...	...	...	...	1,235 14 1
TOTAL RECEIPTS	...	—	...	...	...	...	...		1,236 9 1

ANNUAL FORM No. 58 —(*Prescribed*)—contd.

FOREST DEPARTMENT, INDIA, FOREST SCHOOL.

Summary of Expenditure of the different Divisions during 1889-90—contd

BUDGET HEADS.	Direction.	Division.	Division.	Division.	Division.	Division.	Division	Division	Total.
A.—CONSERVANCY AND WORKS.									R a. p.
I.—TIMBER AND OTHER PRODUCE REMOVED FROM THE FORESTS BY GOVERNMENT AGENCY—									
a. Timber									
b. Firewood and charcoal									
c. Bamboos									
d. Sandal wood									
e. Grass and other minor produce									
II.—TIMBER AND OTHER PRODUCE REMOVED FROM THE FORESTS BY CONSUMERS OR PURCHASERS									
III.—DRIFT AND WAIF WOOD AND CONFISCATED FOREST PRODUCE									
IV.—REVENUE FROM FORESTS NOT MANAGED BY GOVERNMENT—									
a. Duty on foreign timber and other forest produce									
b. Revenue from shared and private forests									
V.—RENT OF LEASED FORESTS AND PAYMENTS TO SHAREHOLDERS IN FORESTS MANAGED BY GOVERNMENT									
VI.—LIVE-STOCK, STORES, TOOLS AND PLANT—									
a. Purchase of cattle	...	...	...	...	...	...	...	...	...
b. Feed and keep of cattle	...	...	...	...	...	...	...	...	...
c. Purchase of stores, tools and plant	...	...	...	...	...	...	..	.	1,002 11 10
VII.—COMMUNICATIONS AND BUILDINGS—									
a. Roads and bridges									
b. Buildings									
c. Other works									
VIII.—DEMARCATION, IMPROVEMENT AND EXTENSION OF FORESTS—									
a. Demarcation									
b. Compensation for land and rights									
c. Surveys and working plans									
d. Sowing and planting									
e. Protection from fire									
f. Other works									
IX.—MISCELLANEOUS—									
a. Refunds	...	...	...	...	...	...	...	...	4 0 0
b. Law charges	...	...	...	...	...	...	...	...	...
c. Other charges	.	...	...	...	...	...	...	...	2,633 6 4
TOTAL A.—CONSERVANCY AND WORKS	...	...	...	...	...	...	...	...	3,640 12 2

ANNUAL FORM No 58.—(*Prescribed*)—concld.

FOREST DEPARTMENT, INDIA, FOREST SCHOOL.

Summary of Expenditure of the different Divisions during 1889-90—concld.

BUDGET HEADS	Direction.	Division.	Division.	Division	Division	Division.	Division.	Division.	Total
									R a. p.
Brought forward Total A.—Conservancy and Works	...	...	...	...	...	...	...	...	3,640 2 2
B —ESTABLISHMENT.									
I.—SALARIES—									
a Conservators	...	...	...	...	...	...	...	...	...
b. Superior officers	...	...	...	...	...	...	.		14,495 11 7
c. Subordinate forest and depôt establishments	...	...	...	...	...	.	...	...	. .
d. Office establishments	...	...	...	...	...	...	...	...	2,237 7 3
e. Deputation and special allowances	...	...	...	-	...	..	...	...	5,031 14 7
II.—TRAVELLING ALLOWANCES—									
a Conservators	...	...	...	...	...	...	...		...
b. Superior officers	...	--	...	...	...	..	...		1,990 4 6
c. Subordinate forest and depôt establishments	...	...	...	...	...	...	...	..	...
d. Office establishments	...	...	...	...		...	...	..	245 10 3
III.—CONTINGENCIES—									
a. Stationery	...	..	...	...	.	...	...	...	78 1 0
b. Carriage of tents and records	...	...	...	...	...		...	...	302 4 5
c. Rents, rates and taxes	...	...	...	...	..	. .	...	..	561 8 5
d. Pay of police guards	...	...	...	...	...	...	..	.	
e. Official postage	...	...	..	...	...	...	...	...	172 11 0
f. Sundries	...	...	...	...	...	...	...	-	891 7 7
TOTAL B.—ESTABLISHMENTS	...	...	...	...	...	...	...	..	26,006 6 1
GRAND TOTAL OF EXPENDITURE		...	...	...	...	...	...	..	29,646 8 3

ANNUAL FORM No. 59.—(*Prescribed*)

Forest Department, India, Forest School.

Account Current for the year 1889–90

Dr.

	R a p	R a p
To Cash Balance		2,283 0 10
„ VIII.—Assessed Taxes—		
Income Tax—Deductions from salaries	...	515 8 3
„ Revenue as per Annual Summary, Form No 58	...	1,236 9 1
„ Service Funds—		
Civil Fund—Ordinary, Bengal	..	
„ „ Additional, „	...	
Military Fund—Bengal	...	
„ „ Madras		
„ Orphan Fund—Bengal		
Uncovenanted Service Family Pension Fund—Bengal	562 8 0	562 8 0
General Family Pension Fund	.	
Hindu Family Annuity Fund		
„ Deposits	...	
„ Forest Cash Remittances—Local—		
Forest cheques drawn	375 4 4	
Inter-Divisional Transfers	.	375 4 4
„ Advances recoverable	..	27 762 12 6
„ Account current with Foreign States—		
„ Her Majesty's Colonial Government, Ceylon	...	75 0 0
„ Account current (other Governments)—		
Remittances from Government of Bengal	82 0 0	
Ditto N.-W. P. and Oudh	49,394 3 8	
Ditto Central Provinces	554 5 8	
Ditto Punjab	15 3 4	
Ditto Assam	150 0 0	
Ditto Madras	251 2 7	50,446 15 3
„ Inter-Departmental Transfers—		
Public Works Department	.	
Military Department	...	
Civil Department—		
Survey of India	297 8 0	
Mathematical Instrument Department	689 7 0	
Miscellaneous	162 8 0	1,149 7 0
Total	...	84,407 1 3

Cr.

	R a. p	R a. p
By Expenditure as per Annual Summary, Form No 58		29,646 8 3
„ Deposits		..
„ Forest Cash Remittances—Local—		
Remittances to Treasuries		
Inter Divisional Transfers		
„ Advances recoverable	.	28,870 1 10
„ Suspense	.	0 0 6
Account current with Foreign States—		
„ Her Majesty's Colonial Government, Ceylon	...	4 905 2 0
„ Account Current (other Governments)—		
Remittances to the Government of Madras	4 859 6 6	
Ditto Bengal	1 801 3 0	
Ditto Central Provinces	6,115 5 5	
Ditto Punjab	1 616 8 11	
Ditto N.-W. P and Oudh	3 953 0 4	
Ditto Assam	1,701 0 0	
Ditto Burma	404 7 0	20,450 15 2
„ Inter-Departmental Transfers—		
Public Works Department	...	
Military Department	..	
Civil Department	734 5 6	734 5 6
Miscellaneous		
„ Cash Balance	..	
Total	...	84,407 1 3

ANNUAL FORM No. 61—(*Prescribed.*)

Forest Department, India, Forest School.

Outstandings and Liabilities on account of Contractors and Disbursers for 1889-90.

Division.	Department Debtor.			Department Creditor.			Balance due.		Remarks.
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (Outstandings).	By Department (Liabilities).	
		R a. p.	R a. p.	R a. p.	R a. p.	R a. p.	R a. p.		
Forest School.	...	27,762 12 6	27,762 12 6	1,696 14 10	28,670 1 10	30,367 0 8	2,604 4 2	...	
Total	...	27,762 12 6	27,762 12 6	1,696 14 10	28,670 1 10	30,367 0 8	2,604 4 2	...	

Government of India Central Printing Office.—No. 988 R. & A.—6-3-91.—190.—H. B.